***DRAFT*** 5/23/00

**PROTOCOL**
**for the SALT LAKE COUNTY AND UTAH COUNTY**
**$PM_{10}$ STATE IMPLEMENTATION PLAN**

## 1.0 Introduction

The purpose of this protocol is to enhance the certainty and timeliness of developing and approving a new $PM_{10}$ State Implementation Plan (SIP) or a maintenance plan for Salt Lake County and Utah County. From this point on in this document, the new SIP or maintenance plan for $PM_{10}$ will be referred to as the "plan". It may be determined during the development of the plan that the nonattainment areas can show attainment of the NAAQS for the next 12-15 years, in which case a Maintenance Plan will be developed. The protocol will be used as a tool to identify and resolve technical and regulatory issues during the development process rather than wait for a complete submittal and address areas of concern late in the process. This will be achieved through a cooperative effort by the Utah Division of Air Quality (UDAQ) and the U.S. Environmental Protection Agency (EPA), Region VIII, to identify and document specific requirements the state needs to include in the proposed plan and establish the criteria EPA intends to use to approve the plan. It is the expectation of both agencies that the plan will be submitted according to this protocol and if the requirements are met, the plan should be approved.

The signatures on the protocol will represent a good faith commitment on the part of both agencies. It is anticipated that several versions of this protocol may be required since technical details will evolve as the plan development process progresses and a number of regulatory issues require resolution. It is clearly understood that this protocol does not limit, alter, or diminish the legal authorities or responsibilities of either agency.

This protocol establishes the major tasks to be completed by the UDAQ for the plan in partnership with the EPA. This protocol includes background information on the need for a plan, and a brief description of the pertinent tasks, issues, and methods to be used in the development of the plan. The methods that are described in this protocol will be followed closely in order to expedite the development and approval of the plan.

### 1.1 Background

The UDAQ developed a SIP for $PM_{10}$ in the early 1990's which was approved by EPA in 1994. This SIP targeted Utah's historical problem with secondary particulate formation during

wintertime inversions along the Wasatch Front. Although there have been no violations of the National Ambient Air Quality Standards (NAAQS) in the nonattainment areas since the SIP was approved in 1994, Utah's Department of Transportation expects that the next round of long-range transportation plans and transportation improvement plans, due in 2000 for Utah County and 2001 for Salt Lake County, will not be able to show conformity to the $PM_{10}$ SIP. This nonconformity is the result of EPA changes to mobile emissions models that were used to establish emission budgets in the current SIP. The UDAQ has decided to create an entirely new plan in order to address conformity issues.

The current SIP for $PM_{10}$ contains source-specific limits and other conditions which have been interpreted differently by EPA and by UDAQ. This has caused genuine disagreement between the agencies and confusion about the nature of the conditions to be enforced. As a result of DAQ's interpretation of its discretionary authority in the current SIP for $PM_{10}$, significant discrepancies now exist between many limits and conditions in Approval Orders and those in source-specific SIP requirements. Because EPA disagrees with DAQ's interpretation, this has created ongoing implementation problems.

While the differences in interpreting the current SIP for $PM_{10}$ are acknowledged, the intention in revising the SIP is to design a new plan based on an entirely new attainment demonstration and to establish an entirely new framework of control measures that provide more environmental benefit without relying as much on source-specific regulatory detail. It is hoped that emission limits will be necessary for the relatively small number of individual stacks, i.e. the core RACT control measures that have a significant impact on NAAQS attainment and maintenance. If this control measure concept can be accomplished, the need to revise emissions limits in the new plan should be rare and would be done through a SIP revision and not just by permit.

Several assumptions have been made to initiate development of the plan. These assumptions are:

< Historic PM violations occuring along the Wasatch Front are associated with the 24-hour standard, not the annual standard. Futhermore, strategies designed to reduce the short term PM ambient concentrations will also serve to reduce annual concentrations. Thus the plan will use UAM-AERO, which is designed for episodic analysis, to demonstrate attainment only for the 24-hour standard. From this analysis it will be assumed that the modeled domain will also be considered to be in compliance with the annual $PM_{10}$ standard and no further analysis of the annual NAAQS will be required as a condition for full plan approval.

< The plan is not being redesigned as a result of monitored violations of the PM standards. In fact, the last exceedance of the 24-hour standard was in February of 1996 and the last violation of the NAAQS occured in 1993. Monitored $PM_{10}$ values

have been relatively low since this time with no days exceeding 75% of the standard.

< Because of the very limited speciated $PM_{10}$ data and meteorological data available for historically high PM episodes, applying a complex model like UAM-AERO for the attainment demonstration will be difficult, especially for establishing performance.

< The Modeling Protocol (attachment 6 of this protocol) specifies a performance test for application of the UAM-AERO model. If the model fails to pass the performance test, UDAQ and EPA, with the assistance of STI, will use speciated linear rollback in conjunction with the model results in order to evaluate attainment (see Section 6.0 and 7.0 of the Modeling Protocol, attachment 6 of this protocol).

In addition to using UAM-AERO (and possibly speciated linear rollback) to evaluate attainment, a hot spot analysis will be conducted in order to assess the impact of large sources of primary $PM_{10}$ which are not located near $PM_{10}$ monitors. This procedure is outlined in Section 7.0 of the Modeling Protocol.

## 1.2 Contractor Selection

To aid in meeting the goals of this study, the UDAQ has contracted support from Sonoma Technology, Inc. for assistance with the development of the emissions inventory, modeling analysis of both input and output data sets, and development of control strategy methods. More details on the contract are included in the $PM_{10}$ SIP Development Final Work Plan, STI-799710, submitted by Sonoma Technology, Inc. The development of highly resolved prognostic meteorological fields will be contracted from the University of Utah. The emissions inventory data collected by the contractor will be used by UDAQ for the general development and implementation of UAM-AERO.

## 1.3 Stakeholder Outreach Plan and $PM_{10}$ SIP Website

A Stakeholder Outreach Plan will be followed to ensure involvement by environmental groups, industry, and other affected parties in the development of the plan. See Stakeholder Outreach Plan, attachment 1 of this protocol, for more details.

A $PM_{10}$ SIP Website has been developed to disseminate information regarding all components of the plan. The website will undergo additions and changes throughout the plan process. See $PM_{10}$ SIP Website, attachment 2 of this protocol, for more details.

## 1.4 Workgroup Interface

Three technical workgroups have been formed and will be retained throughout the effort to provide input: Emissions Inventory Workgroup, Modeling Workgroup, and the Control Strategies Workgroup. These workgroups will be made up of representatives of a wide variety of entities that could be effected by, or would have a specific interest in, the development of the emissions inventory, modeling or control strategies; e.g., EPA, local government agencies, transportation, industry, environmental groups, etc. Throughout this process briefings to the particular workgroup will be made by a combination of letter mailings, routine reports, and meetings at the UDAQ office. These meetings will provide a forum for the UDAQ staff members to personally brief members of the UDAQ staff and workgroup members.

## 2.0 Interim SIP

It may be determined that the UDAQ can submit sufficient documentation to replace the 2003 budget contained in the current SIP for $PM_{10}$ in order to mitigate a lapse in conformity. This "interim SIP" would be submitted to EPA for the intent of receiving conditional approval. The interim SIP will *also* include a commitment by UDAQ to complete an attainment demonstration that is based on dispersion modeling that may be used in conjunction with speciated linear rollback and *to* adopt all ~~needed~~ measures, *as needed*. ~~within 18 months of approval~~. There are two possible opportunities for interim SIP evaluation: 1) upon completion of the 1996 base year inventory and 2003 projection year inventory (see section 3.5), and 2) upon completion of the projection year modeling without additional control strategies (see section 5.3 of this protocol). A separate interim SIP protocol will be prepared to provide more details on the interim SIP effort, once an interim SIP option is determined to be feasible.

## 3.0 Emissions Inventory

### 3.1 Inventory Preparation Plan

The UDAQ proposes to use the 1996 emission inventory as the base year inventory and will prepare emission inventories for the February 11-15, 1996 and February 6-9, 1996, $PM_{10}$ episodes. The UDAQ's Inventory Preparation Plan (IPP), which incorporates a quality assurance plan, has been revised to guide inventory preparation, identify projection years, revise modeling requirements, and assure quality data. See IPP, attachment 3 of this protocol, for more details. EPA will review the IPP and provide any necessary comments within four weeks of submittal by UDAQ.

UDAQ will work with Sonoma Technology, Inc. and EPA to develop an Emissions Inventory Protocol for this specific project. It will be developed initially for the base

year emissions inventory, and details will be added for the projection year emissions inventory when the projection years are determined. See the Emissions Inventory Protocol, attachment 4 of this protocol, for more details.

### 3.2 Data Collection Methods

The contractor and UDAQ will follow the data collection procedures provided in the Emissions Inventory Protocol (see attachment 4 of this Protocol).

### 3.3 Base Year Emission Inventory

The 1996 inventories will be assembled to ensure that emissions estimates are available for each grid cell in the full Wasatch Front modeling domain. Emission estimates will be prepared for stationary sources, area sources, and mobile sources, based on actual emissions, and provided to modelers for further processing. Technical support documentation (TSD) will be prepared and submitted to EPA upon completion. The base year emission inventory will be submitted to EPA for review. EPA will review the inventory and provide any necessary comments within four weeks of submittal by UDAQ.

### 3.4 Projection Year Inventory

Emission estimates for future year projections (i.e., 2007, 2017, etc.) will be developed by extrapolating from base year emissions, taking into consideration growth, and existing state/federal controls. Such controls include, for example, approval order conditions, SIP conditions, operating permit conditions, state rules, and requirements from CFR that are included in the $PM_{10}$ SIP. For mobile sources, transportation modeling outputs for future years as well as projected vehicle miles traveled (VMT) levels will be provided by the Metropolitan Planning Organizations (MPOs). ~~For major point sources, projections will be based on allowable emissions to include any banked emissions and will be made on company specific projections. For area sources, projections will be based on actual emissions and projected using projected employment figures by industry type and population growth estimates. If 2000 census information is available in time, these figures will be used for transportation and area emission estimates.~~ *Emissions projections will be as described and agreed to in the Inventory Protocol (see attachment 4 of this Protocol).* The projection year emission inventory will be submitted to EPA for review. EPA will review the inventory and *strive to* provide any necessary comments within four weeks of submittal by UDAQ.

### 3.5 Interim SIP Evaluation

As stated in section 2.0, an interim SIP evaluation will be made at this point in the plan by comparing the 1996 base year inventory to the projection year inventory once they are completed. If the projection year inventories are lower or approximately equal to the 1996 base year, then the inventories coupled with design value rollforward calculations will be submitted to EPA for interim SIP approval. A conformity determination will be made by the MPOs once emissions budgets for Utah County and Salt Lake County are determined. The interim SIP will create new mobile source emission budgets based on MOBILE5 outputs.

If the projection year inventories are higher than the 1996 base year inventories, then UDAQ will investigate, with the aid of Sonoma Technology, Inc., other interim control measures that will result in emission reductions. If sufficient emission reductions are achieved using the interim control measures, then the control measures, inventories, and design value rollforward calculations will be submitted to EPA for interim SIP approval. EPA will review the submittal and strive to provide comments if necessary within four weeks of submittal by UDAQ. After EPA review, UDAQ will proceed with the modeling efforts, regardless of the outcome of the interim submittal to EPA. It is understood that the interim control measures are only an interim step in the development of a plan and that UDAQ will re-evaluate the need for the interim control measures when the modeling is completed. An interim SIP protocol will be prepared to provide more details on this effort, once the interim SIP option is determined to be feasible.

## 4.0 Air Monitoring Data

The majority of the air quality data for the UAM-AERO application and evaluation will be obtained from the Utah Air Monitoring Center (AMC). The AMC collects data from the UDAQ, Aerometric Information Retrieval System (AIRS), the National Climatic Data Center (NCDC), the U.S. Geological Survey (USGS), the U.S. Forest Service (USFS), and several local and industrial sources.

UDAQ will analyze the ambient $PM_{10}$ monitoring data with respect to the level of the $PM_{10}$ standard and will report exceedances of the standard to EPA.

The UDAQ will continue to evaluate the ambient PM monitoring network to ensure that the network meets all applicable federal regulations and guidelines. Results of the evaluation will be submitted to EPA by June 1 of each year in the Annual Network Review.

The TSD for the air monitoring data will be submitted to EPA for review. EPA will review the

strategies and strive to provide any necessary comments within four weeks of submittal by UDAQ. See the Monitoring Protocol, attachment 5 of this protocol, for more details on monitoring efforts.

# 5.0 Modeling

## 5.1 Modeling Protocol

The UDAQ proposes to use UAM-AERO, an urban-scale grid-based aerosol model, for the attainment demonstration. UAM-AERO was developed by Sonoma Technology for the California Air Resources Board. If the UAM-AERO model fails to pass the application performance test, then UDAQ and EPA, with the assistance of STI, will evaluate using speciated linear rollback in conjunction with the model results. The $PM_{10}$ SIP Modeling Protocol, attachment 6, provides greater detail regarding the modeling effort. UDAQ will submit the $PM_{10}$ SIP Modeling Protocol to EPA for review. EPA will review the protocol and strive to provide any necessary comments within four weeks of submittal by UDAQ.

### 5.1.1 Modeling Domain

The modeling domain was chosen to include Salt Lake, Utah, and surrounding counties. Although Salt Lake and Utah counties are non-attainment for PM10, there have not been any $PM_{10}$ NAAQS violations since 1996. The modeling effort will focus on Salt Lake and Utah counties because these areas do not meet conformity requirements for $PM_{10}$. In addition, significant problems exist with the stationary source limits and requirements in the current SIP for $PM_{10}$ for Salt Lake and Utah counties.

### 5.1.2 Episodes of Elevated $PM_{10}$

The episode finally selected covers the days with highest $PM_{10}$ concentrations in the period of time spanning 1995-1999, which is February 11-15, 1996 (see Table 2-1, Table 2-2 and Figure 2-4 of the Modeling Protocol, attachment 6 of this protocol). EPA generally recommends that episodes are chosen from within the most recent three years of complete air quality monitoring. In this case, those three years would cover 1997-1999. There were no $PM_{10}$ NAAQS violations during this time period so the days with the highest $PM_{10}$ levels will be used as a representative episode. The episode days in the chosen episode include non-holiday weekdays along with a Sunday ramp-up day. Because of the lack of available speciated data and meteorological data, only

one episode was chosen from 1996. UDAQ collected additional particulate and precursor data during the winter of 1999/2000 in the hope of capturing an appropriate addtional episode during this time period. No episodes of high particulates were collected during the winter of 1999-2000. Consequently, another 1996 episode (February 6-9, 1996) will be considered for modeling. We will do a preliminary analysis of the wind fields and, in conjunction with available speciated data, determine whether this episode is suitable for modeling. This earlier February 1996 is less than ideal for the following reasons:

- < There is no measured exceedance of the $PM_{10}$ standard during this episode.
- < There is essentially no speciated data for this episode.
- < The meteorological modeling, in a preliminary analysis, produces unrealistically high wind fields and, because of a lack of meteorological measurements, there is no way to improve upon these meteorological fields.

For these reasons, the earlier 1996 episode may not be modeled. However, in the following discussion of the episodes, both February 1996 episodes will be presented in case the earlier 1996 episode needs to be modeled.

### 5.1.3 Emission Inventory Needs

Base year 1996 emissions inventories and projection year emissions inventories will be assembled for modeling purposes following the general procedures provided in section 3.0 of this protocol. More details on emission inventory development is provided in the Emissions Inventory Protocol, attachment 4 of this protocol.

### 5.1.4 Data Inputs for UAM-AERO Model

UDAQ proposes to use the Sparse Matrix Operator Kernel Emission (SMOKE) preprocessor system to create emission inputs for the UAM-AERO model. More details on the SMOKE emissions preprocessor system is provided in the Modeling Protocol, attachment 6 of this protocol.

### 5.1.5 Meteorological Inputs

All available meteorological data will be used in the evaluation of the meteorological modeling. UDAQ proposes to use data from the Utah Mesonet, a cooperative intermountain project between researchers at the University of Utah, forecasters at the Salt Lake City National Weather Service Office, and scientists at a variety of government and private institutions.

### 5.1.6 Base Case Modeling & Performance Evaluation

Guidance on photochemical $PM_{10}$ grid model performance evaluation is not available due to the limited amount of information on aerosol modeling. Evaluation will be further hampered by relative lack of speciated $PM_{10}$ data and meteorological data during the two February 1996 episodes. Accordingly, UDAQ and EPA have agreed on the performance criteria for application of the UAM-AERO model, as described in the Modeling Protocol (see attachment 6 of this protocol).

Once the performance evaluation is completed, the TSD will be prepared. The TSD will be submitted to EPA for review. EPA will review the evaluation and strive to provide any necessary comments within four weeks of submittal by UDAQ.

### 5.1.7 Projection Year Modeling without Additional Control Strategies

UDAQ proposes to project base year (i.e., 1996) modeling emissions to some future baseline year (i.e., 2007, 2017,etc.). As summarized in section 3.4 of this protocol, these future year projected inventory(s) will reflect current growth projections in addition to the net effect of existing state and federal controls. The Modeling Protocol, attachment 6 of this protocol, provides more detailed information on the methodologies to be used to develop future year emission projections.

Once the projection year modeling without additional control strategies is completed, the TSD will be prepared. The TSD will be submitted to EPA for review. EPA will review the evaluation and provide any necessary comments within four weeks of submittal by UDAQ.

## 5.2 Modeled NAAQS Violations

It should be noted that modeled violations of the 24 hour NAAQS could pose problems during the development of the plan. Predicted concentrations may indicate a NAAQS violation in areas where no monitoring stations exist. These predicted

violations will not be considered a NAAQS violation if modeled violations are not significantly over the NAAQS, since validation is not possible and the model's lack of accuracy should preclude its use in this manner. Instead, UDAQ may need to consider other mechanisms for validation of a modeled violation, such as additional monitoring.) A hot spot analysis based upon EPA's draft PM2.5 guidance (U.S. EPA, 1999b., "Demonstrating Attainment of NAAQS For PM2.5 and Reasonable Progress Reducing Regional Haze, Concepts Paper Draft 4 (10/4/99)", Office of Air Quality Planning and Standards, Research Triangle Park, NC) will be used to evaluate potential NAAQS violations by large sources of primary $PM_{10}$ which are not near $PM_{10}$ monitors. This evaluation will be based upon the future year projected emissions inventory for 2003 and existing $PM_{10}$ monitor locations. UAM-AERO model predictions of high $PM_{10}$ concentrations in areas where no monitoring stations exist will not be used independently to implicate individual sources as the cause of NAAQS violations. Section 7.0 of the Modeling Protocol discusses the hot spot analysis in more detail.

### 5.3 Interim SIP Evaluation

As stated in section 2.0, it may be possible for EPA to approve, on a conditional basis, an interim attainment demonstration in order to mitigate the impact of a lapse in conformity. If the first interim SIP option (explained in section 3.5 of this document) does not show attainment, a second interim SIP option may be available. At this step in the plan, this interim SIP would be based on modeling without new controls. This interim SIP evaluation will be performed by comparing the modeled concentrations for the 1996 base year and the projection year inventories. The modeling demonstration will be based on countywide rollback for both Salt Lake County and Utah County to reflect that they are two distinct nonattainment areas. If the modeled projection year concentrations are lower than the standards, then the modeling demonstration will be submitted to EPA for interim SIP approval. If attainment cannot be demonstrated, then UDAQ will follow, with the aid of STI, the same procedures that are outlined in section 3.5 of this protocol to evaluate possible interim control measures that will result in emission reductions. As stated in section 3.5 of this protocol, UDAQ will proceed with the UAM-AERO modeling effort regardless of the outcome of the interim SIP submittal to EPA. An interim SIP protocol will be prepared to provide more details on this effort, once the interim SIP option is determined to be feasible.

## 6.0 Control Strategies

### 6.1 Control Strategy Concepts

The control strategies in the current SIP for $PM_{10}$ are deficient for a number of reasons. They may not adequately address the current mix of sources among the major sectors (stationary, mobile, and area) or among stationary source sectors. Although the demonstration and resulting measures account for dispersion, chemistry, or meteorology, some sources could be over controlled while others are under controlled.

### 6.1.1 Stationary Sources

As discussed in Section 1.1 of this protocol, the current SIP for $PM_{10}$ contains dozens of individual emission limits that EPA feels require a formal SIP revision to change. One of Utah's major goals for the plan is to establish an entirely new framework of control measures that provide more environmental benefit without relying as much on source-specific regulatory detail. Instead, the SIP would rely to a greater extent on more generic requirements, with source-specific limits and requirements for a smaller number of sources that have a significant impact on NAAQS attainment and maintenance. It is not clear at this time what the threshold will be for the inclusion of sources in the SIP; UDAQ and EPA will resolve this issue as the emissions inventory is developed. Also, only about 75 stationary sources are specifically regulated by the current SIP for $PM_{10}$. It is likely that numerous other $PM_{10}$ sources exist that should be better regulated.

### 6.1.2 Mobile Sources

Current budgets are not based on the latest EPA MOBILE model and are outdated. Every effort will be made to use MOBILE6.0 to ensure that the most realistic analysis of the mobile source sector is available. In the new SIP for $PM_{10}$, control strategies should be comensurate with the short and long term emissions from the sector.

### 6.1.3 Area Sources

In the plan, the impact of pollution from small sources will be quantified in more detail and for more pollutants so that appropriate controls are considered for this sector.

## 6.2 Control Strategies Development

UDAQ, with the aid of Sonoma Technology, Inc., proposes to identify technologically feasible control strategies and review cost and benefit evaluations for selected control strategy options. Development of control strategies will be based on the following

multi-step process:

- Review UAM-AERO modeling and control scenario runs in combination with the inventories.

- Create an initial list of potential control strategies and provide the list, with brief descriptions and rationale, to stakeholder committee for review. More details on the evaluation of potential control strategies is provided in the $PM_{10}$ SIP Development Work Plan by Sonoma Technology, Inc.

- Provide a template for evaluating the cost/benefit and feasibility analyses for selected control measures or for sets of control measures. More details are provided in the $PM_{10}$ SIP Development Work Plan by Sonoma Technology, Inc.

- Create a limited number of viable control measure inputs for UAM-AERO testing.

- Provide additional information to stakeholders for review and discussion.

### 6.3 Submit Control Strategies to EPA

The proposed control strategies will be submitted to EPA for review. EPA will review the strategies and provide any necessary comments within four weeks of submittal by UDAQ.

## 7.0 Mobile Source Issues

### 7.1 Effect of Changes in Mobile Emissions Models

Some uncertainties exist in the development of the plan due to the forthcoming replacement of MOBILE5b with MOBILE6.0 as EPA's officially recognized mobile source model. EPA's MOBILE6.0 is scheduled for release during the fall of 2000.

UDAQ prefers to use MOBILE6.0 for estimating emissions from on-road motor vehicles. It is likely that MOBILE6.0 will not be available in time. It is possible that an early version of MOBILE6.0 could be used to provide motor vehicle emission factors for estimating emissions from on-road motor vehicles. UDAQ and EPA will determine whether an early version of MOBILE6.0 or other tools will be used if available.

If MOBILE6.0 can be used and it shows different emission values than MOBILE5b, then it may be possible that a revision of the plan could be necessary within one year of approval. If emission values are different, then UDAQ will review the appropriateness of continuing the plan development process using MOBILE5.0. UDAQ and EPA will use the phase-in period, which will be established in the federal register, for implementing MOBILE6.0. The phase-in period will provide for implementation of Transportation Improvement Plans by the MPOs within a reasonable time period. See the Mobile Protocol, attachment 7 of this protocol, for more details.

### 7.2 Conformity Emission Budgets

In the current SIP for $PM_{10}$, no emission budgets are explicitly quantified. UDAQ proposes to establish a budget through 2030 to be used as a basis for determining conformity of the Long Range Transportation Plan developed by the MPOs. Emission budgets will be established in tons/day for each pollutant. As the plan is developed, several issues related to the emissions budgets need to be considered and resolved. First, the emissions budgets should be outlined with greater clarity in the plan, consistent with current practice for other pollutants in Utah. Second, emissions budgets are needed for at least the year 2003, and for the maintenance year if a maintenance plan is developed. If UDAQ can submit sufficient documentation to replace the 2003 budget contained in the plan, then an interim SIP will be submitted to EPA for conditional approval. The transportation agencies and others will include budgets for additional years in order to facilitate future conformity determinations. Third, in revising the plan, consideration must be given to whether to continue the current practice of allowing primary $PM_{10}$ and the precursors to be combined in conformity, or whether to establish budgets for each pollutant individually. Fourth, the dispersion modeling may indicate a need to establish sub-regional mobile source budgets for areas where growth in emissions would be of particular concern in maintaining compliance with the NAAQS. Finally, EPA guidance provides that if SIPs include a specific inventory for $PM_{10}$ from roadway construction activities, these inventories must be considered in conformity determinations (i.e., a "construction" emissions budget is created). The plan will need to consider whether to create such a budget as a way to control construction-related emissions.

## 8.0 Attainment Demonstration

### 8.1 Impact of Control Strategies

Although there have been no violations of the $PM_{10}$ NAAQS in Salt Lake and Utah counties since 1996, there is a need to demonstrate that attainment will be maintained in

future years taking into consideration continued urban and industrial growth in the region as well as meteorology.

UDAQ will collect information from industry, metropolitan planning organizations, EPA, and other states regarding the magnitude of $PM_{10}$ emission reductions to be obtained from various proposed control strategies. The effectiveness and viability of possible control measures will be compared before a final decision will be made on the appropriate control measures to be implemented. The control measures will be compared using the following major considerations: 1) cost effectiveness, 2) reductions achieved in a certain timeframe, and 3) overall benefit of controls.

UDAQ will ensure that it has legal authority to implement and enforce all control measures for which emissions credits are assumed in the demonstration of attainment.

## 8.2 Projection Year Inventory with Controls

Emission estimates for future year projections will be developed by forecasting the projection year inventory, taking into consideration the application of appropriate control strategies. The projection year inventory will be submitted to EPA for review. EPA will review the inventory and strive to provide any necessary comments within four weeks of submittal by UDAQ. After EPA review, the inventory will be provided to the modelers.

## 8.3 Projection Year Modeling with Controls

The emissions inventory projections will be modeled using UAM-AERO. The UAM-AERO results, if validated through base case performance evaluations, will be used to evaluate compliance with the 24 hour standard for PM10. If, however, the model performance fails to meet the criteria outlined in the Modeling Protocol (see attachment 6 of this protocol) for demonstration of attainment or maintenance, UDAQ and EPA will evaluate alternatives to using model results in a traditional modeled attainment test, including using the model results in conjunction with speciated linear rollback. As with any demonstration of attainment or maintenance, the projection inventories will reflect allowable emissions for major stationary sources (as defined in the Emissions Inventory Protocol, attachment 4), reasonable growth assumptions, and the application of whatever control strategies that are necessary to assure protection of the NAAQS. The projection year modeling will be submitted to EPA for review. EPA will review the projection year modeling with controls and strive to provide any necessary comments within four weeks of submittal by UDAQ.

## 8.4 Contingency Measures

According to Section 172(c)(9) of the Clean Air Act, any SIP for a nonattainment area must contain contingency measures to be implemented if an area fails to make reasonable further progress (RFP) or meet the NAAQS by a certain date. If analysis indicates that a new SIP for $PM_{10}$ is required, then UDAQ will evaluate possible contingencies, take the list of possible contingencies to scoping meetings, and present a draft plan to the Air Quality Board (AQB) for public comment. After the public comment period, revisions will be made if necessary and a contingency plan will be finalized to take effect immediately if the contingencies are triggered. If analysis indicates that a maintenance plan is required, then a contingency plan will be developed and a list of contingency measures will be placed in the maintenance plan. If a violation of the $PM_{10}$ NAAQS occurs, a contingency measure or measures will be implemented in order to prevent further exceedances of the standard.

### 8.4.1 Effectiveness of Contingency Measures

UDAQ proposes to evaluate the effectiveness of the contingency measures and include the evaluation in the contingency measure draft plan that is presented to the AQB. In addition, the draft plan will include an implementation schedule for each measure. Additional information on the effectiveness evaluation will be contained in the TSD which will be submitted to EPA for review. EPA will review the evaluation and strive to provide any necessary comments within four weeks of submittal by UDAQ.

## 9.0 Administrative

### 9.1 Resource Needs

UDAQ will conduct an evaluation of resource needs to develop the plan and will make provisions to accomodate those needs.

### 9.2 Peer/Stakeholder Review

For each of the following phases: 1) inventory preparation, 2) modeling, 3) control strategy development, and 4) attainment demonstration, a period of four weeks will be allocated for peer/stakeholder review of final documents.

### 9.3 Interim SIP

Once UDAQ completes the interim SIP, the Governor will send a letter to EPA requesting that EPA propose approval of the proposed interim SIP by parallel

processing. It is the intent of UDAQ and EPA to conduct concurrent public comment periods on the interim SIP.

### 9.3.1 State rulemaking process

In the first phase of the interim SIP approval process, the interim SIP will be proposed for a 30 day State comment period. At the end of the State public comment period, all comments will be addressed. Revisions will be made, if necessary, and a final interim SIP will be prepared for adoption by the Air Quality Board (AQB). After the AQB meeting at the beginning of the month, the final document will be sent to the Division of Administrative Rules (DAR) by the 15th of the month, and the document will be published in the State Register by the first of the following month.

### 9.3.2 Federal rulemaking process

Once the Governor has submitted the proposed interim SIP to EPA with his letter requesting parallel processing, EPA will conduct a completeness review and provide any necessary comments to UDAQ. The Governor's submittal will need to meet EPA's completeness criteria, as outlined in 40 CFR Part 51, Appendix V, section 2.3.1. EPA will strive to determine completeness within 30 days of receiving the plan and Governor's request. If EPA finds the submittal complete, and if EPA believes the proposed plan can be conditionally approved, EPA will then propose conditional approval of the proposed interim SIP. This would normally involve a 30-day public comment period. EPA and the State will attempt to coordinate their notices of proposed rulemaking so that the comment periods run concurrently. EPA will attempt to address any public comments within 60 days of the end of the comment period. Once Utah promulgates the final interim SIP, Utah will need to follow the requirements of 40 CRF Part 51, Appendix V, sections 2.1 and 2.2, including a new Governor's letter under 2.1(a). If Utah finds it necessary to change the proposed interim SIP in response to public comments, EPA will need to review the changes and may need to repropose action on the interim plan. Once relevant comment periods have closed, EPA will evaluate the interim plan, considering public comments and responses, and will either issue a notice of final conditional approval, or will inform Utah that EPA cannot issue conditional approval and give Utah the opportunity to withdraw the interim SIP and make changes. Assuming EPA publishes a notice of final conditional approval, EPA plans to make the conditional approval effective 30 days after publication. The MPOs would then have new budgets for conformity, and assuming the MPOs could demonstrate conformity with these budgets, the conformity lapse in Utah

County, which will begin in August 2000, will end once the MPOs and USDOT have completed new conformity determinations.

Assuming EPA grants conditional approval to the interim SIP, Utah will need to submit all SIP elements necessary for full approval, including the UAM modeling, control measures, and contingency measures, within one year of EPA's conditional approval. Otherwise, the conditional approval will convert to disapproval.

### 9.4 Final Plan Approval Process

Once the plan is completed, the document will be prepared for final approval using the state and federal rulemaking process outlined above in section 9.3 of this protocol. The only difference between the interim SIP approval process and the final plan approval process is that the interim SIP approval is conditional.

## 10.0 Other Related Issues

**EPA and UDAQ have different language for the issues in this section.**

### 10.1 Director's Discretion

**UDAQ's Comments:**

In recent years, EPA has determined that many SIPs throughout the country contain language that does or could limit the ability of EPA or the public to enforce the Clean Air Act. EPA and UDAQ have discussed the areas of the Utah SIP that might pose problems in this regard and have agreed to rectify these problems. The problem areas have been divided into the following four categories to facilitate resolution: variances, permitting, specific emission limits in the SIP for $PM_{10}$ annexes, and other examples which may be general SIP requirements or specific to the plan.

**EPA's Comments:**

EPA has determined that the Utah SIP contains language that could be read to allow the State to unilaterally change SIP requirements and thereby undermine the ability of EPA or the public to enforce the Clean Air Act. EPA and UDAQ have discussed the areas of the Utah SIP that might pose problems in this regard and have agreed to rectify these problems. The problem areas have been divided into the following four categories to facilitate resolution: variances, permitting, specific emission limits in the

SIP for $PM_{10}$ annexes, and other examples which may be general SIP requirements or specific to the plan. EPA and UDAQ intend to resolve these problems during the development of the interim SIP. It is EPA's position that the interim SIP must resolve these problems, and that EPA will be unable to approve the interim SIP if these problems are not resolved.

### 10.1.1 Variances

**UDAQ's Comments**:

The UDAQ legal staff is exploring language that might resolve EPA's concerns with the current variance rule; however, the Utah code does require a variance provision.

**EPA's Comments**:

UDAQ intends to propose language that it hopes will resolve EPA's concerns with the current variance rule. Although EPA believes it may only be possible to resolve EPA's concerns with the variance rule by removing the rule from the SIP, EPA is willing to consider UDAQ's proposed language changes. UDAQ intends to provide proposed substitute language to EPA by April 30, 2000. EPA will review this language and will strive to provide any necessary comments within four weeks of submittal by UDAQ.

In addition, the SIP currently contains the Utah variance statute, section 19-2-113, UCA. The interim SIP will request that EPA remove the variance statute from the SIP. [[We're assuming it would be impossible to make changes to the statute's language within the interim SIP time frame. So, removal seems like the only option.]]

### 10.1.2 Permitting

**UDAQ's Comments**:

UDAQ is developing a procedural proposal that includes both interim and long term solutions to address EPA's permitting concerns for SIP sources while the plan is being developed. It is anticipated that a permanent solution will be developed during the development of control measures, as discussed in section 6.0 of this protocol.

**EPA's Comments**:

UDAQ intends to propose language as a substitute for the last two sentences of

section R307-1-3.2.4, UACR. UDAQ envisions a procedure that would avoid the need for a SIP revision every time a stationary source emission limit is changed. EPA has significant doubts that such an approach will meet EPA's concerns, and believes it is likely that the last two sentences of R307-1-3.2.4, UACR, will have to be removed from the SIP. However, EPA is willing to consider UDAQ's proposed language changes. UDAQ intends to provide proposed substitute language to EPA by April 30, 2000. EPA will review this language and will strive to provide any necessary comments within four weeks of submittal by UDAQ.

### 10.1.3 Specific Emission Limits in the Current $PM_{10}$ SIP Annexes

**UDAQ's Comments**:

The plan will use an entirely new set of control measures that will not rely as extensively on specific stack limits. This change will allow the vast majority of the limits in the annexes to be replaced and, therefore, will not be an ongoing problem.

**EPA's Comments**:

Language in the current PM10 SIP Annexes could be read to allow Utah to change SIP limits without a SIP revision. UDAQ intends to propose changes to this language, or add limiting language to the SIP, to limit the effect of such language. Although EPA believes it may only be possible to resolve EPA's concerns with the Annex language by removing such language from the SIP, EPA is willing to consider UDAQ's proposed language changes. UDAQ intends to provide proposed language to EPA by April 30, 2000. EPA will review this language and will strive to provide any necessary comments within four weeks of submittal by UDAQ.

### 10.1.4 Other examples of Director's Discretion

**UDAQ's Comments**:

The UDAQ staff is researching the Utah rules to find examples of language referring to Director's Discretion that could pose problems. If language is found, it will be examined by the legal staff and revised. All revisions will be sent to EPA for review.

**EPA's Comments**:

The UDAQ staff is researching the Utah rules to find all language referring to

Director's Discretion. UDAQ staff intends to complete this task by April 15, 2000 and to submit a list of such language to EPA by April 30, 2000. UDAQ intends to submit draft substitute language to EPA by May 15, 2000. EPA will review this language and will strive to provide any necessary comments within four weeks of submittal by UDAQ.

Within two weeks of receiving any EPA comments under sections 10.1.1 through 10.1.4, UDAQ will inform EPA whether it will implement EPA's comments. If UDAQ and EPA are unable to reach agreement regarding the necessary approach to resolve these issues, EPA may find it necessary to issue a SIP call or take other steps authorized by the Clean Air Act.

### 10.2 Use of Inter-pollutant Offsets

The current $PM_{10}$ SIP allows a 1-1 trading ratio between secondary and primary pollutants, which is problematic. UDAQ and EPA will decide to eliminate such trading or establish realistic ratios based on the modeling analysis.

### 10.3 NSR Offset Program

EPA and UDAQ met September 27, 1999 to discuss concerns EPA had regarding implementation of the Utah NSR offset program. Several issues were identified that required attention or further investigation by the State and EPA. Some actions have been completed and others are ongoing. It is anticipated that the remaining substantive issues can be resolved during the SIP development process and that rule and policy revisions that may be necessary to improve or clarify the program will be put in place at the appropriate times prior to or as part of the SIP approval itself.

### 10.4 Use of Plantwide Emission Caps

The concept of an emissions cap surrounding a "point source" of multiple release points within the regulatory context of the forthcoming $PM_{10}$ SIP, or a NSR permit is permissible as long as it is used within the following guidelines:

- To the extent that an attainment demonstration cannot delineate an "exchange rate" between a criteria pollutant and its various precursors, a cap number must pertain to a specific pollutant and not allow the trading of one pollutant/precursor for another to demonstrate compliance with such a cap.

- The cap, as an enforceable condition, must be enforceable as a practical matter. It must be possible for a compliance officer to verify that the source has or has not discharged emissions in excess of the cap number for a given averaging period.

- In the context of a health based standard, the averaging period of a cap must be consistent with the averaging time of the appropriate standard.

- Regardless of its adequacy in terms of protecting a health based standard, as documented through an approved attainment demonstration, certain emission points within an overall cap should not be excused of demonstrating compliance with other technology-based standards (e.g. NSPS, RACT, MACT, etc.).

## 11.0 Signatories

By our signatures, we are indicating that we intend, and intend our staffs, to follow this protocol in developing the plan. However, we recognize that this protocol does not address every issue that may arise during plan development, and that this protocol may require further refinement. Also, we do not intend to follow this protocol if doing so would abrogate requirements under applicable laws or would be contrary to applicable policies.

United States Environmental Protection Agency, Region VIII

Date _____ By _____

Richard R. Long, Director
Air & Radiation Program

Utah Department of Environmental Quality
Division of Air Quality

Date _____ By _____

Ursula K. Kramer
Director